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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/609,247

06/26/2003

Kuniaki Yanagisawa

P/1071-1594

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2352

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06/30/2004

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EXAMINER

NGUYEN, SANG H

ART UNIT

PAPER NUMBER

2877

DATE MAILED: 06/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

4

Office Action Summary	Application No. 10/609,247	Applicant(s) YANAGISAWA ET AL.	
	Examiner sang nguyen	Art Unit 2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 8-9, 11-16, and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaami (U.S. Patent No. 6,388,808) in view of Weber et al (U.S. Patent No. 4,017,147).

Regarding claims 1, 9, 11, and 19; Tanaami discloses three dimensional shape measuring apparatus and method, comprising:

- an optical system (figure 3) having a light source (8 of figure 3), a pattern forming (figure 3) disposed on the optical axis of the light source (8 of figure 3) to form a slit light array (10 of figure 3) from the light source (8 of figure 3), and a projection lens (12 of figure 3) to collect the slit light on the object (13 of figure 3) to be measured;
- a beam splitter (11 of figure 3) h3), wherein a size of the aperture in the slit array (10 of figure 3) direction is smaller than size of the aperture in the beam splitter (11 of figure 3); and

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- a detection unit considered to be CCD camera (14 of figure 3) for measuring a three dimensional shape of the object (13 of figure 1 or figure 4a) based on the slit light reflected from the object (13 of figure 3). See figures 1-10.

Tanaami discloses all of features of claimed invention except for an asymmetric diaphragm having an aperture to stop slit light in the direction perpendicular. However, Weber et al teaches that it is known in the art to provide an asymmetric diaphragm (13 of figure 3a) having an aperture (19 of figure 3a) to stop slit light in the direction perpendicular (figures 2-3 and col.4 lines 43-67 and claim 1). See figures 1-5.

Therefore, it would having ordinary skill in the art at the time the invention was made to modify three dimensional shape measuring apparatus and method of Tanaami with an asymmetric diaphragm having an aperture to stop slit light in the direction perpendicular as taught by Weber et al for the purpose of blocking light area.

Regarding claims 2 and 12; Tanaami teaches that a plurality of the slit lights (figure 3).

Regarding claims 3-4 and 13-14; Tanaami teaches that the light source is less than a laser beam (col.1 line 28 and col.2 lines 50-53) or the light source is a white light source (8 of figure 3).

Regarding claims 5-6 and 15-16; Tanaami discloses all of features of claimed invention except for an asymmetric diaphragm is disposed between the light source and projection lens. However, Weber et al teaches that an asymmetric diaphragm (13 of figure 2) is disposed between the light source (11 of figure 2) and projection lens (2 of figure 2). It would having ordinary skill in the art at the time the invention was made to

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modify three dimensional shape measuring apparatus and method of Tanaami with an asymmetric diaphragm is disposed between the light source and projection lens as taught by Weber et al for the purpose of blocking light area.

Regarding claims 8 and 18; Tanaami teaches that a reflector (22 of figure 8) for reflecting the slit light onto the object (25 of figure 8).

Claims 7, 10, 17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaami in view of Weber et al as applied to claims 1 and 11 above, and further in view of Ikeda (U.S. Patent No. 5,301,003).

Regarding claims 7 and 17; Tanaami in view of Weber et al discloses all of features in claimed invention except for a reflector for receiving the reflected light from the object. However, Ikeda teaches that it is known in the art to provide a reflector (34 of figure 1) for receiving the reflected light from the object (13 of figure 1). It would having ordinary skill in the art at the time the invention was made to modify three dimensional shape measuring apparatus and method of Tanaami with a reflector for receiving the reflected light from the object as taught by Weber et al for the purpose of reducing light reflected the from object for measuring accuracy the three dimensional object.

Regarding claims 10 and 20; Tanaami in view of Weber et al discloses all of features in claimed invention except for the detection unit having a plurality of detectors. However, Ikeda teaches that it is known in the art to provide the detection unit having a plurality of detectors (14, 15 of figure 4). It would having ordinary skill in the art at the time the invention was made to modify three dimensional shape measuring apparatus

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and method of Tanaami with detection unit having a plurality of detectors as taught by Weber et al for the purpose of reducing light reflected the from object for measuring accuracy the three dimensional object.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Karr et al (DE 196 14 885) discloses sensor for transmission or reception of ultrasonic signals; Conrads et al (5136627) discloses slit diaphragm system; Grosskopf (4873653) discloses microscope system for providing three dimensional resolution; Kato et al (384227) discloses light dissecting optical system; Watkins (3787117) discloses method and apparatus for inspecting workpieces; or Betz (3617135) discloses optical alignment method and apparatus.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sang Nguyen whose telephone number is (571) 272-2425. The examiner can normally be reached on 9:30 am to 7:00 pm.

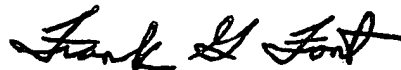
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SN

Sang Nguyen
June 23, 2004



Frank G. Font
Supervisory Patent Examiner
Art Unit 2877
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